Reproductive BioMedicine Online (2011) 23, 355–360

www.sciencedirect.com
www.rbmonline.com

ARTICLE

Two common polymorphisms in the peroxisome proliferator-activated receptor γ gene may improve fertilization in IVF

Mehdi Sahmani [a,b], Ebrahim Sakhinia [a], Laya Farzadi [c], Reza Najafipour [b], Masoud Darabi [a], Amir Mehdizadeh [a], Vahideh Shahnazi [c], Maghsod Shaaker [a], Mohammad Noori [a,d,*]

[a] *Department of Biochemistry, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran;* [b] *Department of Clinical Biochemistry, Cellular and Molecular Research Center, Qazvin University of Medical Sciences, Qazvin, Iran;* [c] *Women's Reprod uctive Health Research Center, Alzahra Hospital, Tabriz University of Medical Sciences, Tabriz, Iran;* [d] *Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran*

* Corresponding author. *E-mail address:* mmdnoori@gmail.com (M Noori).

Abstract Genetic factors play an important role in women's fertility and embryonic development and may also contribute to the efficacy of assisted reproduction techniques. The aim of this study was to investigate the effect of His447His and Pro12Ala peroxisome proliferator-activated receptor γ (PPARγ) gene polymorphisms on oocytes and fertilization in women undergoing IVF. Follicular fluid and blood samples were obtained from 98 IVF patients referred to Tabriz Alzahra Hospital. Samples were analysed for fatty acid content by gas–liquid chromatography and for polymorphisms of the PPARγ gene using polymerase chain reaction-restriction fragment length polymorphism-based methods. Multiple regression analyses were used to test the independence of associations between the number of mature and fertilized oocytes as outcome variables and the polymorphisms of PPARγ gene. For both polymorphisms, fertilization ratio was significantly ($P < 0.05$) higher in carriers of the rare alleles than homozygous wild-type genotypes. The associations of His447His ($P = 0.003$) and Pro12Ala ($P = 0.015$) polymorphisms remained statistically significant in the multiple regression analyses. This study suggests that the two common gene polymorphisms of PPARγ may improve fertilization *in vitro* and, thus possibly, female fertility.

KEYWORDS: His447His, IVF, PPARγ, Pro12Ala

1472-6483/$ - see front matter © 2011, Reproductive Healthcare Ltd. Published by Elsevier Ltd. All rights reserved.
doi:10.1016/j.rbmo.2011.05.005